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COMMENTS OF THE CONSUMER FEDERATION OF AMERICA

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SUMMARY:
THE FCC SHOULD NOT AUCTION THE NATION'S FIRST AMENDMENT ASSETS TO MEDIA MOGULS AND COMMUNICATIONS CONGLOMERATES

Auctioning off the nation's First Amendment Assets to media moguls and communications conglomerates would be disastrous for consumers and citizens. Radio spectrum has been recognized as a public resource that is vital to the First Amendment in modern America. Communications and computing technologies are making it increasingly possible to free the spectrum from the tyranny of licensing. Increasingly, citizens can use this asset in an unrestricted manner that does not impose a licensee between speakers or listeners and the means of communications. Expanding the reliance on unlicensed spectrum would promote both consumer and citizen interests by stimulating vigorous, atomistic competition in the economy and unfettered democratic discourse in the polity. Creating quasi-property rights in spectrum through auctions is exactly the wrong thing to do.

The aspiration of the Supreme Court under the First Amendment for achieving the **"widest possible dissemination of information from diverse and antagonistic sources"** makes it clear that the should be treated first, and foremost as a forum for democratic discourse. To put the matter simply, the needs of citizens cannot be reduced to the needs of consumers. The objective of the commercial marketplace is to improve efficiency and produce profit. The objective of the forum for democratic discourse (often called the marketplace of ideas) is to promote diversity and antagonism that produces participation, understanding and "truth."

The moment spectrum is auctioned, the private economic interests of the license holder comes into conflict with the citizen interest. Once the airwaves are sold-off – "propertized" or "monetized" in current jargon – the new owners will decide who gets to use it and how it is used. If you have enough money, you get to speak, if you do not, you are out of luck. In the commercial model, the popular, mainstream, middle of the road ideas will almost certainly find a voice, one that is likely to be very loud, but the unpopular, unique, and minority points of view will not. Profit maximization in increasingly centralized, commercial media conglomerates promotes standardized, lowest common denominator products that systematically exclude minority audiences, eschew controversy, and avoid culturally uplifting but less commercially attractive content.

A small number of giant corporations interconnected by ownership, joint ventures, and preferential deals now straddle broadcast, cable and the Internet. Access to the means of communications is controlled by a small number of entities in each community and distribution proprietors determine what information the public receives. The licensing of more spectrum and the creation of quasi-property right creates barrier to participation in civic discourse, where none need to exist.

Ironically, given the current state of technological developments, "monetizing" the radio spectrum through a huge auction would not even be the best way to maximize its economic value. Exactly the same technologies and institutional factors that created the dynamic Internet are coming to bear on radio spectrum. Enhanced hardware and software, distributed at the edges of a communications network are revolutionizing the way we think about spectrum.

Selling the radio spectrum closes the door on an extremely promising opportunity to extend this dynamic information environment into the broadband Internet. Control of the transmission medium has always been a focal point for challenges to the Internet principles. Foregone positive externalities are only half the problem. The auctioning of spectrum is likely to reinforce existing market power. Dominant incumbents have the resources and the incentive to win the bids to protect their existing market power or to capture economies of scale and scope. In pursuing their interests, proprietary facility owners restrict the use of communications networks suppressing innovation. It would be the height of foolishness to create private ownership or control over the spectrum where it does not exist, which would then invoke the newly minted quasi-property rights to strangle the Internet.

Rather than rush to sell off the radio spectrum, the FCC should rationalize current uses and expand the space for unrestricted use. Because there are parts of the spectrum that have not been licensed to anyone and technologies are increasingly able to utilize unoccupied space in the spectrum, the agency has the opportunity to immediately establish this principle of unrestricted use in parts of the spectrum without confronting a conflict between new public uses and old private interests.

This does not mean we should not manage the current uses of the spectrum more efficiently by allowing more flexible licenses, but we must not confuse the reform of licensing of currently occupied spectrum with the best use for newly "discovered" or unlicensed spectrum. The FCC should maximize the unrestricted use of the spectrum. Presently unlicensed space should remain so. Non-interference rules to facilitate unlicensed use should be developed. Expanding unlicensed space should be a top priority. This means granting licenses for short periods of time. Whenever spectrum becomes available, first priority should go to unlicensed use. If there is congestion in unlicensed space, the newly available spectrum should be made set aside for unlicensed use. If there is no congestion in unlicensed space, the newly available spectrum should be re-licensed subject to auctions.

Where licenses are auctioned, the use should not be specified. The license holder should be allowed to devote the spectrum that he or she has rented from the public to the use he or she deems of highest value, given the length of the license. When re-licensing the spectrum, there should be no "bias" in favor of incumbents.

Going in the opposite direction would better serve the public, reinforcing the dynamic environment of the Internet and supporting a far richer civic discourse. Building the next generation of the Internet on an open transmission network that is in the public domain would finally free the Internet from the specter of centralized control and enclosure that has haunted it throughout its existence. Reconstructing the open communications platform of the Internet on the foundation of publicly owned spectrum and thereby freeing it from the constant threat of enclosure by private interests is a profoundly historic to advance the interest of consumers and citizens.

I. ONCE MONEY TALKS, NOBODY ELSE CAN

THE FCC SHOULD NOT SELL THE NATION'S FIRST AMENDMENT ASSETS TO MEDIA MOGULS AND COMMUNICATIONS CONGLOMERATES[1]

In these comments the Consumer Federation of America (CFA)[2] shows that proposals to auction off the airwaves (radio spectrum) ignore the First Amendment value of a vital asset that Congress and the Courts have correctly deemed to be a public trust. While parts of the spectrum should be licensed, for a fee, for short periods of time, public policy should be generally heading in the opposite direction. Communications and computing technologies are making it increasingly possible to free the spectrum from the tyranny of licensing. Increasingly, citizens can use this asset in an unrestricted manner that does not impose a licensee between speakers or listeners and the means of communications. Thus, in order to execute its role as administrator of the spectrum trust and promoter of the public interest under the Communications Act, the FCC should manage the spectrum to maximize its unlicensed use.

One of the reasons that CFA embraced the decentralized, open communications principles of the Internet long before its dramatic commercial success is the fact that it supports vigorous, atomistic competition in the economy and unfettered democratic discourse

[1] As A.J. Liebling lamented, "freedom of the press belongs to the man who owns one." We suspect he would find it especially troublesome for government to create ownership rights through auctions that would further restrict the freedom to publish.

[2] The Consumer Federation of America (CFA) is the nation's largest consumer advocacy group, composed of two hundred and eighty state and local affiliates representing consumer, senior, citizen, low-income, labor, farm, public power and cooperative organizations, with more than fifty million individual members. CFA is online at www.consumerfed.org.

in the polity.[3] Reconstructing this open communications platform on the foundation of publicly owned spectrum and thereby freeing it from the constant threat of enclosure by private interests is a profoundly historic to advance the interest of consumers and citizens. Creating quasi-property rights in spectrum is exactly the wrong thing to do. This opportunity should not be squandered by taking a narrowly economic, short-term view of a remarkably valuable, long-lived asset.

Section I shows that 'propertizing' the spectrum to maximize economic value for licensees is neither the only nor the best measure of the value of the spectrum.[4] The aspiration of the Supreme Court under the First Amendment for achieving the "widest possible dissemination of information from diverse and antagonistic sources" is a dramatically

[3] Mark Cooper, *Expanding the Information Age for the 1990s: A Pragmatic Consumer View* (American Association of Retired Persons and Consumer Federation of America, January 11, 1990); *Developing the Information Age in the 1990s: A Pragmatic Consumer View*, (Consumer Federation of America, June 8, 1992, "Delivering the Information Age Now," *Telecom Infrastructure*: 1993, Telecommunications Reports, 1993, *The Meaning of the Word Infrastructure* (Consumer Federation of America, June 30, 1994.

[4] Section I is drawn from "Comments of the Consumer Federation of America, Consumers Union, Center for Digital Democracy, The Office of Communications of the United Church of Christ, Inc., National Association of Telecommunications Officers and Advisors, Association for Independent Video Filmmakers, National Alliance for Media Arts and Culture, and the Alliance for Community Media." Federal Communications Commission, *In the Matter of Implementation of Section 11 of the Cable Television Consumer Protection and Competition Act of 1992 Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996 The Commission's Cable Horizontal and Vertical Ownership Limits and Attribution Rules Review of the Commission's Regulations Governing Attribution Of Broadcast and Cable/MDS Interests Review of the Commission's Regulations and Policies Affecting Investment In the Broadcast Industry Reexamination of the Commission's Cross-Interest Policy*, CS Docket No. 98-82, CS Docket No. 96-85, MM Docket No. 92-264, MM Docket No. 94-150, MM Docket No. 92-51, MM Docket No. 87-154, January 4, 2002 (Horizontal Limits Proceeding); and Mark Cooper, "Preserving Democratic Discourse in the Digital Information Age," *Consumer Assembly*, March 14, 2002, also filed Ex Parte with the Commission in the Horizontal Limits Proceeding, May 2, 2002.

different goal than maximizing commercial use. Spectrum should be treated first, and foremost as a forum for democratic discourse.

Section II shows that with the convergence of communications and computing technologies which gave rise to the dramatic growth of the Internet, "monetizing" the spectrum by selling it off is not even its best "economic" use.[5] Because spectrum is a communications infrastructure, it can support much more dynamic innovation if it is not encumbered by licensee or owner preferences and controls. Allowing owners or licensees to enclose the transmission core of this communications platform would destroy vast positive externalities that never enter into the private economic calculations of license holders. Consequently, it reduces the total societal economic value of the spectrum to its owners – the public. This point is demonstrated by examining the superior economic performance of open communications platforms interacting with the end-to-end principle of the Internet. Spectrum has vastly greater value as an open communications platform to support decentralized economic activity.

[5] Section II is drawn from Mark Cooper, *The Role of ISPs in the Growth of the Commercial Internet* (Consumer Federation of America and Texas Office of Public Utility Counsel, July 2002), attached to "Comments Of The Texas Office Of Public Utility Counsel, Consumer Federation Of America, Consumers Union, Media Access Project, And The Center For Digital Democracy," *In the Matter of Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities Universal Service Obligations of Broadband Providers Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer III and ONA Safeguards And Requirements*, Federal Communications Commission, CC Dockets Nos. 02-33, CC Dockets Nos. 95-20, 98-10, July 1, 2002; "Open Communications Platforms: Cornerstone of Innovation and Democratic Discourse in the Internet Age," *The Journal of Telecommunications and High Technology Law*, forthcoming.

Section III presents principles for managing ever-larger segments of the airwaves as unrestricted spectrum.[6] It presents both broad principles and practical rules to expand the availability of unlicensed spectrum. There are certainly challenges in the unlicensed use of the spectrum, but these can be overcome in a manner that preserves and maximizes open communications and the end-to-end principle of the Internet.

II. THE FORUM FOR DEMOCRATIC DISCOURSE TRUMPS THE COMMERCIAL MEDIA MARKETPLACE

A. 'PROPERTIZING' THE AIRWAVES IGNORES CRITICAL FIRST AMENDMENT VALUES OF DEMOCRATIC DISCOURSE

Almost exactly twenty years ago, Mark Fowler, Ronald Reagan's first Chairman of the Federal Communications Commission, declared that television, "is just toasters with pictures."[7] The idea was to reduce everything the Federal Communications Commission does to simple economics.[8] Sell all the airwaves to the highest bidder, we are told, and let the marketplace decide the most valuable economic uses. Once the airwaves are sold-off –

[6] Section III is drawn from Mark Cooper, "Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed Proprietary Networks," *University of Colorado Law Review*, 71 (2000); and Mark Cooper and Christopher Murray, "Technology, Economics And Public Policy To Create An Open Broadband Internet," *The Policy Implications of End-to-End*, Stanford Law School, December 1, 2000. In the narrow context of digital television principles that are similar to those offered in these comments can be found in "Statement of Dr. Mark Cooper on Digital Television on Behalf of The Consumer Federation of America and Consumers Union," *Senate Commerce, Science and Transportation Committee*, March 1, 2001.

[7] C. Edwin Baker, *Media, Markets, and Democracy* (Cambridge: Cambridge University Press, 2002), p. 3; citing Caroline E. Mayer, "FCC Chief's Fears: Fowler Sees Threat in Regulation, *Washington Post*, February 6, 1983, K6.

[8] Mark S. Fowler and Daniel L. Brenner, "A Marketplace Approach to Broadcast Regulation," *Texas Law Review* 60 (1982).

"propertized" or "monetized" in current jargon – the new owners will decide who gets to use it and how it is used. If you have enough money, you might be able to buy some, or rent it. If you do not, you are out of luck.

Although Fowler could not implement much of his plan, the current Chairman of the FCC shares this view.[9] Recent decisions to allow TV station license holders to sell their rights to broadcast as if they were private property[10] and proposals to use auctions to quickly

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[9] A few days after a major court ruling remanded several long-standing limitations on the ability of a single company to own different media outlets (*Fox Television Stations, Inc., v. Federal Communications Commission*, 2002 WL 233650 (D.C. Cir.)), February 19, 2000 (hereafter, Fox v. FCC), the *Washington Post* offered the following observation on things to come under the headline *Narrowing the Lines of Communications?* (February 4, 2002, C2).

> It is only a matter of time before nearly all barriers to cross-ownership in the media industry are lifted… In major metropolitan areas it may be possible, even common, for one giant corporation to own the dominant newspaper, the cable television monopoly, a local broadcast station, several radio stations and even the dominant Internet access provider.
>
> The decisions will give added support to FCC Chairman Michael K. Powell, who views such restrictions as anachronisms in an era of Internet, broadband and satellite technology… Any excess concentration, Powell argues, can be handled by the Justice Department in its traditional role as enforcer of the antitrust laws.

Chairman Powell has made his personal agenda so clear that even an appeals court Judge has been driven to comment on his widely publicized preferences (e.g. Judge Sentelle, Concurring and Dissenting in Part," *Sinclair Broadcast Group, Inc. v. Federal Communications Commission*, April 2, 2002) and well-respected newspapers routinely score decisions on the extent to which they further the Chairman's private agenda:

> While technically a defeat for the Commission, which was the defendant in the case, the decision was a political victory for its Chairman, Michael K. Powell…Mr. Powell has already expressed skepticism about the rules and is in the middle of a review of them that experts predict will lead to their substantial modification in favor of the regional Bell Companies (Labaton, Stephen, "U.S. Appeals Court Order Is Victory for Regional Bells," *New York Times*, May 25, 2002).

[10] In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's rules, Carriage of the Transmission of Digital Television Broadcast Stations, Review of the Commission's Rules and Policies Affecting the Conversion To Digital Television, WT Docket No. 99-168, CS Docket No. 98-120, MM Docket No. 00-39, September 17, 2001.

sell-off the radio spectrum, which has become a cutting edge of communications because of recent technological developments, are current examples the pure economic approach.[11]

Fortunately, neither the Congress nor the courts have accepted the extremely simplistic notion that communications and mass media are "just toasters with pictures." If that were the case, we would not have needed the First Amendment. The ability to speak and be heard has a special place in our society that goes well beyond mere economics.

B. A LOT MORE THAN TOASTERS WITH PICTURES

Justice Black gave the First Amendment a vigorous modern formulation in 1945 in the seminal case, *Associated Press*,[12] when he declared that the First Amendment **"rests on the assumption that the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public."**

The Supreme Court made it quite clear that freedom of information and the press transcend mere economics. Justice Frankfurter, concurring in *Associated Press*, added:

> A free press is indispensable to the workings of our democratic society. The business of the press, and therefore the business of the Associated Press, is the promotion of truth regarding public matters by furnishing the basis for an understanding of them. Truth and understanding are not wares like peanuts and potatoes. And so, the incidence of restraints upon the promotion of truth through denial of access to the basis for understanding calls into play considerations very different from comparable restraints in a cooperative enterprise having merely a commercial aspect.[13]

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[11] Gerald Faulhaber and David Farber, Spectrum Management: Property Rights, Markets and the Commons, available at http://ftp.fcc.gov/oet/tac/june12-02-ocs/NEW_SPECTRUM_MANAGEMENT_1.ppt; It is noteworthy that papers expressing a contrary point of view, presented at the same conference, are not available at the FCC web site.

[12] Associated Press v. United States, 326 U.S. 1, 20 (1945)

[13] Associated Press, 326, U.S. at 17.

Associated Press also recognized that limitations on private interests to promote freedom of the press were permissible.

> Freedom to publish means freedom for all and not for some. Freedom to publish is guaranteed by the Constitution, but freedom to combine to keep others from publishing is not. Freedom of the press from governmental interference under the First Amendment does not sanction repression of that freedom by private interests.[14]

In fact, while the D.C. Appeals Court was stinging in its criticism of the FCC for not doing its homework, it also chided the media companies for ignoring the importance of non-economic considerations in policies to promote civic discourse.[15]

Since *Associated Press,* the Supreme Court has reaffirmed this view with respect to newspapers[16] and has unflinchingly upheld Congressional decisions to extend this principle to all forms of mass media including broadcast TV[17] and cable TV.[18] In addition to applying the First Amendment principles to the radio spectrum, Congress has also seen the airwaves as a special public asset.[19] Since the initial discovery of the usefulness of the radio spectrum, Congress has declared that it is the property of the people, a public resource that should be managed as a public trust for the people as a whole.

To put the matter simply, the needs of citizens cannot be reduced to the needs of consumers. The difference between the commercial market and the forum for democratic discourse (often called the marketplace of ideas) can be seen when we reject the advice

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[14] Associated Press v. United States, 326 U.S. 1, 20 (1945)

[15] Fox v. FCC, pp. 12-13.

[16] *FCC v. National Citizens Committee for Broadcasting*, 436 U.S. 775 (1978).

[17] *Red Lion Broadcasting v. FCC*, 395 US 367 (1969).

[18] *Turner Broadcasting System, Inc. v. FCC*, 512 U.S. 622, 638-39 (1994)("*Turner I*"); *Time Warner Entertainment Co., L.P. v. FCC*, 240 F.3d 1126 (D.C. Cir. 2001) (*Time Warner III*).

[19] 47 USC Sections 301, 304, 309(h), 310(d).

frequently given by the most ardent advocates of pure economics in response to complaints about the poor quality of the media. 'If you do not like what is on the tube, turn it off,' they say. It may be perfectly acceptable for consumers to be forced to vote with their dollars and turn off commercial entertainment, but it is not acceptable for citizens to be turned off by the poor quality of civic discourse. As Justice Brandeis explained in his concurrence in Whitney v. California,

> Those who won our independence believed that the final end of the State was to make men free to develop their faculties; . . . that the greatest menace to freedom is an inert people; that public discussion is a political duty; and that this should be a fundamental principle of American government.[20]

The general principle that we want First Amendment policy to draw people into civic discourse applies with particular force to minority and non-commercial points of view. In the commercial model, the popular, mainstream, middle of the road ideas will almost certainly find a voice, one that is likely to be very loud, but the unpopular, unique, and minority points of view will not. Profit maximization in increasingly centralized, commercial media conglomerates promotes standardized, lowest common denominator products that systematically exclude minority audiences, eschew controversy, and avoid culturally uplifting but less commercially attractive content. The Supreme Court's broad reading of the First Amendment rejects that notion.

To put the issue another way, the objective of the commercial marketplace is to improve efficiency and produce profit. The objective of the forum for democratic discourse (often called the marketplace of ideas) is to promote diversity and antagonism that produces participation, understanding and "truth."

[20] 274 U.S. 357 (1927).

Under the Supreme Court's dynamic principle, there is no such thing as "enough" democratic discourse. There need be no embarrassment in raising the bar as technology improves. When it comes to civic discourse, our nation's democratic principles require that public policy respond to evolving market conditions and technology in a manner that vigorously and relentlessly promotes the widest possible dissemination of information from diverse and antagonistic sources.

C. ELEMENTS OF A BROAD ASPIRATION FOR THE FIRST AMENDMENT

A narrow economic view of media outlets that pays no attention to the size of the organizations that produce news and information or their geographic orientation also loses all perspective on citizens' ability to gain access to the media. As corporate scale dwarfs individual resources, citizens are cut off from the means of communications. *Associated Press* certainly expressed a concern about the sheer size of news organizations and the influence that could result.[21] The size of media organizations presents a growing mismatch between those in control and average citizens.[22] It is hard to see how auctions in which large, corporations will be well-positioned to buy spectrum will mitigate this growing problem.

A simplistic economic approach to media misunderstands the aspirations of the modern interpretation of the First Amendment in another fundamental way. It fails to recognize that information is not just a commodity in which one source, or information from one type of media, can substitute for another. Institutional diversity – different types of media, with different cultural and journalistic traditions and different business models – plays

[21] Maurice E. Stucke and Allen P. Grunes, "Antitrust and the Marketplace of Ideas," *Antitrust Law Journal*, 69 (2001).

[22] Sullivan, Lawrence, "Economics and More Humanistic Disciplines: What are the Sources of Wisdom for Antitrust, 125,

a special role in promoting civic discourse. Unique perspectives provided by different institutions are highly valued as sources of information.

> Judge Learned Hand painted a picture of diversity that was properly complex, noting that a newspaper "serves one of the most vital of all general interests: the dissemination of news from many different sources, and with as many different facets and colors as possible"[23] because "it is only by cross-lights from varying directions that full illumination can be secured."[24]

A narrow economic view of media also fails to fully recognize the distinction between entertainment and information. Even if the economic media marketplaces were composed of significant numbers of small firms competing aggressively with one another, an unfettered commercial mass media market might not lead to a vibrant forum for democratic discourse that our Constitution attempts to promote because diverse sources of information are not the object of commercial competition. It favors entertainment at the expense of information.[25]

III. THE INTERNET: WHERE DECENTRALIZED ECONOMICS AND DEMOCRATIC DISCOURSE CONVERGE

A. TECHNOLOGY, OPEN COMMUNICATIONS AND THE DYNAMIC INTERNET ENVIRONMENT

In order to appreciate the critical role that unfettered use of the spectrum can play in the further development of the information age, it is useful to apply the concept of a communications platform, which provides an environment in which information or content is produced. Four layers – the physical layer, the logic or code layer, the applications layer and

[23] Associated Press, 52 F. Supp. at 372.
[24] Stucke and Grunes.
[25] Fiss, Owen. "Essays Commemorating the One Hundredth Anniversary of the Harvard Law Review: Why the State?"

the content layer – define the communications platform.[26] It is a platform because there are strong complementarities between the layers.[27] They must fit together closely and smoothly in order to deliver service.

The physical layer is composed of three parts: a transmission medium (e. g. wires or spectrum), communications equipment and display devices. Radio spectrum is a transmission medium. In the contemporary cable network, the transmission medium is primarily hybrid fiber coaxial cable that provides the last-mile connection to the residence. In the telephone network the transmission medium is copper wire. Fiber optic cables are found in the backbone of both networks. Unlicensed spectrum is an inviting last mile alternative, particularly when it is combined with increased computing power and more powerful code.

The logic (or code) layer involves the codes and standards with which communications equipment and display devices interconnect, interoperate, and communicate. Protocols interpret the signals. Operating systems allocate and coordinate the resources of the system. The operating systems and communications protocols can be resident in communications equipment and devices or network equipment.

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[26] See Yochai Benkler, *Intellectual Property and the Organization of Information Production,* (forthcoming in *International. Journal on Law and Economics*, and Lessig, 2001, p. 23, uses three layers and note that Berners-Lee, 1999, identifies four layers, transmission, computer, software and content.

[27] Shapiro and Varian, *Information Rules* (Cambridge: Harvard Business School Press, 1999), pp. 9 – 15; also Richard N. Langlois, "Technology Standards, Innovation, and Essential Facilities: Toward a Schumpeterian Post-Chicago Approach," in (Jerry Ellig (Ed.), *Dynamic Competition and Public Policy: Technology, Innovations, and Antitrust Issues* (Cambridge: Cambridge University Press, 2001), p. 207, calls them system products – "Most cumulative technologies are in the nature of systems products, that is products that permit or require simultaneous functioning of a number of complementary components." Complementarities exist where standards knit the layers of the platform together.

Applications constitute the third layer. Applications are programs that execute a sequence of steps to solve a problem or perform a task for the user. Well-known Internet examples are e-mail, instant messaging, and file sharing.

The content layer is made up of the specific task or problem solved in a given execution of an application. The end-user or a service provider can provide content.

Public policy to promote open communications platforms interacted with major developments in technology to produce a uniquely dynamic communications platform in the last two decades of the 20th century. The growth of the Internet and its underlying technologies changed the fundamental economics of information production.[28]

At the physical layer, cheap, powerful computers[29] and sprawling fiber-optic networks allow communications at rising speeds with falling costs.[30] In the computer hardware industry positive feedback loops, or virtuous circles sustain change and productivity growth that are orders of magnitude larger than typified the industrial age.[31] Advances in computing technology support more advances in computing technology with much greater intensity than

[28] Benkler, Yochai, *Coase's Penguin, or Linux and the Nature of the Firm*, *Conference on the Public Domain,* Duke University Law School, (November 9-11), 2001, p. 1, points out that "As rapid advances in computation lower the physical capital cost of information production, and as the cost of communications decline, human capital became the salient economic good involved in information production."

[29] Baase, Sara, A *Gift of Fire: Social, Legal and Ethical Issues in Computing (*Upper Saddle River, N.J: Prentice-Hall, 1996).

[30] Gilder, George F., *Telecosm: How Infinite Bandwidth Will Revolutionize Our World* (New York: Free Press, 2000).

[31] Gaines, Brian, R., "The Learning Curve Underlying Convergence," *Technology Forecasting and Social Change* Jan./Feb. 1998, pp. 30-31.

in other industries. The positive feedback effects stimulate much more dynamic economic development than simple efficiencies.[32]

In the code layer of the network, increasingly sophisticated software enables messages to be routed, translated, and coordinated.[33] In the applications layers, a software revolution of standardized and pre-installed bundles of software appear to have allowed the rapidly expanding capabilities of computer hardware to become accessible and useful to consumers with little expertise in computing.[34]

At the content layer every sound, symbol, and image can now be digitized.[35] The more complex the sound or image, the more data has to be encoded and decoded to accomplish the digital representation.[36] But, when computing speeds, storage capacity and transmission rates become big enough, fast enough, and cheap enough, it becomes feasible to move huge quantities of voice, data, and video over vast distances. As computers got cheaper and cheaper and applications became more abundant and user-friendly, computers ceased being merely a workplace or laboratory tool and became a consumer electronic device.

Overlaid on this dramatically expanding technological base was the architectural design principle of the Internet – the end-to-end principle. Open communications networks were the essence of the Internet as conceived by its founders and decentralized

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[32] Arthur, W. Brian, "Positive Feedbacks in the Economy." *Scientific American.* Feb. 1990, p. 95; see also Arthur, W. Brian. 1989, "Competing Technologies, Increasing Returns and Lock-in by Historical Events." *Economic Journal. 1989:*99.

[33] Gaines, 1998, p. 23.

[34] Katz, Michael and Carl Shapiro, "Antitrust and Software Markets," in Jeffrey A. Eisenbach and Thomas M. Lenard (Eds.), *Competition, Innovation and the Microsoft Monopoly: Antitrust and the Digital Marketplace* (Boston: Kluwer. 1999).

[35] Owen, Bruce M., 1999, *The Internet Challenge to Television* (Cambridge: Harvard University Press.1999), p. 29.

[36] Owen, 1999, p. 151.

experimentation and innovation were its objectives.[37] Open communications networks interacted with the end-to-end principle of the Internet to produce a dramatic change in the information environment.

> The "End-to-End" principle organizes the placement of functions within a network. It counsels that "intelligence" in a network be located at the top of a layered system— at its "ends," where users put information and applications onto the network — and that the communications protocols themselves (the "pipes" through which information flows) be as simple and general as possible. (16)

> While the End-to-End design principle was first adopted for technical reasons, it has important social and competitive features as well. End-to-end expands the competitive horizon, by enabling a wider variety of applications to connect and use the network. It maximizes the number of entities that can compete for the use and applications of the network. As there is no single strategic actor who can tilt the competitive environment (the network) in favor of itself, or no hierarchical entity that can favor some applications over others, an End-to-End network creates a maximally competitive environment for innovation, which by design assures competitors that they will not confront strategic network behavior. (18)[38]

The beneficial effects of this design on innovation and economic activity have been well documented. This design principle and a fierce dedication to decentralized development lay at the core of the dominant application of the Internet, the web.[39] Lessig argues that

> [t]he birth of the web is an example of the innovation that the end-to-end architecture of the original Internet enabled. Though no one quite got it – this most dramatic aspect of the Internet's power – a few people were able to develop and deploy the protocols of the World Wide Web. They could deploy it because they didn't need to convince the owners of the network that it was a

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[37] Janet Abbate, *Inventing the Internet* (Cambridge: MIT Press, 1999); Lawrence Lessig, *The Future of Ideas* (New York: Random House, 2001; Berners-Lee, Tim, *Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web by Its Inventor (New York: Harper Collins, 1999).*

[38] Mark Lemley and Lawrence Lessig.. "Written Ex Parte." *In the Matter of Application for Consent to Transfer Control of Licenses of MediaOne Group Inc. to AT&T Corp*., Federal Communications Commission, CS Docket No. C99-251, November 10, 1999, numbers in parentheses are paragraphs.

[39] Berners-Lee, p. 72-73.

> good idea or the owners of computer operating systems that this was a good idea.[40]

The resulting change in the information environment arises not only because of the intensity of use of the factors of production, [41] or even its speed, but a fundamental change in relationships between the factors of information production. Users of the communications network become producers embedded in an interactive process through instantaneous feedback.[42]

> It is a proven lesson from the history of technology that users are key producers of the technology, by adapting it to their uses and values, and ultimately transforming the technology itself, as Claude Fischer demonstrated in his history of the telephone. But there is something special in the case of the Internet. New uses of the technology, as well as the actual modifications introduced in the technology, are communicated back to the whole world, in real time. Thus, the time span between the process of learning by using and producing by using is extraordinarily shortened, with the result that we engage in a process of learning by producing, in a virtuous feedback between the diffusion of technology and its enhancements.[43]

This transforms existing organizations, [44] while it makes possible new forms of collaborative information production to exist on a sustainable basis.[45] The new thrust of organization, based on distributed intelligence and flat structure, reflects these forces. The

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[40] Lessig, 2001, p. 43.

[41] Langlois, 2001, p. 206.

[42] Benkler, Yochai, *From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access*, 52 *Fed. Comm. Law Journal*. 561 (2000).

[43]Manuel Castells, *Internet Galaxy* (Oxford: Oxford University Press. 2001, p. 28. Note that the telephone is an industrial age communications platform with significant network effects, but does not exhibit the feedback loops or virtuous circles of information age communications platforms.

[44]Whitman, Marina v. N., *New World, New Rules* (Boston: Harvard Business School Press, 1999), Chapter 2.

[45] Benkler, 2001b, p. 23.

ability to coordinate at a distance dramatically alters the nature of centralized control, transferring much decision-making to dispersed management.[46]

This development in information space is extremely procompetitive. The Internet unleashed competitive processes and innovation exhibiting the fundamental characteristics of audacious or atomistic competition.[47]

> Experimentation by users and competition among providers, across the range of segments that constitute the Internet, generated a surge of self-sustaining innovation… This network openness and the user-driven innovation it encouraged were a distinct departure from the prevailing supply-centric, provider-dominated, traditional network model. In that traditional model a dominant carrier or broadcaster offered a limited menu of service options to subscribers; experimentation was limited to small-scale trials with the options circumscribed and dictated by the supplier. [48]

The end-to-end principle had a dramatic effect in the communications environment.

> Diversity of experimentation and competition on an increasingly open network were key, since nobody could foresee what would eventually emerge as successful applications. Openness allowed many paths to be explored, not only those which phone companies, the infrastructure's monopoly owners, would have favored. Absent policy-mandated openness, the Regional Bell Operating Companies (RBOCs) and monopoly franchise [cable television] networks would certainly have explored only the paths of direct benefit to them. It is doubtful that without such policy-mandated openness the Internet Revolution would have occurred.[49]

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[46] Evans Phillip and Thomas S. Wurster, *Blown to Bits*: *How the New Economics of Information Transforms Strategy* (Cambridge: Harvard Business School Press, 2000), p. 17.

[47] Langlois, 2001, p. 207, offers this as a general proposition of system products.

> [I]nnovation normally proceeds fastest when a large number of distinct participants are trying multiple approaches simultaneously. Because of the complexity that system products normally exhibit, and because of the qualitative uncertainty inherent in the process of innovation, multiple approaches and numerous participants provide greater genetic variety than would a simple innovator (or small number of innovators), which leads to more rapid trial-and-error learning.

[48] Bar, et. al., 1999.

[49] Bar, et. al., 1999.

B. 'MONETIZING' THE AIRWAVES UNDERVALUES A VITAL PUBLIC ASSET

Ironically, given the current state of technological developments, "monetizing" the radio spectrum through a huge auction would not even be the best way to maximize its economic value. Exactly the same technologies and institutional factors that created the dynamic Internet are coming to bear on radio spectrum. Enhanced hardware and software, distributed at the edges of a communications network are revolutionizing the way we think about spectrum.[50]

Selling the radio spectrum closes the door on an extremely promising opportunity to extend this dynamic information environment into the broadband Internet. Control of the transmission medium has always been a focal point for challenges to the Internet principles. While the narrowband (dial-up) Internet thrived because federal policy imposed rigorous standards of non-discriminatory interconnection and carriage, cable operators have refused to make their advanced telecommunications networks available and telephone companies have avoided their legal obligation to do so. It would be the height of foolishness to create private ownership or control over the spectrum where it does not exist, which would then invoke the newly minted quasi-property rights to strangle the Internet.

As the administrator of the public trust over the airwaves, the Federal Communications Commission should be making increasing amounts of this public resource available to the public without any restrictions on its use. Unlicensed spectrum subject only to a rule of non-interference will allow vastly more experimentation and innovation, as well as democratization, in communications and the media. This unused spectrum is especially

[50] David P. Reed, "How Wireless Networks Scale: The Illusion of Spectrum Scarcity," *Silicon Flatirons Telecommunications Program,* March 5, 2002. Yochai Benkler, "building the Common in Physical Infrastructure," *New York University School of Law,* N.S.

attractive to the third generation of Internet innovation, since it could be used as the transmission medium for high-speed Internet access.

Privatized spectrum will undervalue the positive externalities of open communications space. In pursuing their interests, proprietary facility owners restrict the use of communications networks suppressing innovation. Throughout the history of the Internet transmission facility owners have argued for greater control over the use of the network. In the late 1970s, as the Internet was being created, telecommunications companies sought to impose their centralized architecture upon it.[51] Again in the late 1980s, as the Internet was transitioning to commercial operations, the telecommunications giants wanted to change its structure.[52]

Today, the open communications network is again under attack and the Federal Communications Commission appears be reversing its three decade commitment to open communications networks. It has issued a series of orders and rulemakings that would essentially allow owners of network facilities to control the deployment of services and access to facilities for Internet Service Providers and consumers.[53] Unlicensed spectrum may be the only chance to preserve an open communications platform for the broadband Internet.

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[51] Abbate, 1999, pp. 159.

[52] Bell Atlantic, *Delivering the Promise: A Vision of Tomorrow's Communications Consumer* (N.D.); Pacific Telesis, *The Intelligent Network Task Force Report* (October 1987); Lockton, J.D. Jr. (Senior Vice President, Pacific Telesis), "Information Age Developments in Telecommunications," in W.H. Dutton, J.G. Blumler and K.L. Kraemer (Eds.), *Wired Cities* (Boston: G.K. Hall, 1987); Geeslin, B.M. (Vice President Marketing and Technology, NYNEX), "Funding the Future Telecommunications Infrastructure," *IEEE Communications Magazine,* August 1988; Hanley, P.A. (Vice President of Regulatory and Industry Affairs, Bell Atlantic), "The Telecommunications Infrastructure Could Speed the Arrival of the Information Age," *Public Utilities Fortnightly,* August 17, 1989.

[53] *In the Matter of Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities Universal Service Obligations of Broadband Providers Computer III*

C. SELLING THE SPECTRUM IS LIKELY TO REINFORCE MARKET POWER BY DOMINANT MEDIA AND COMMUNICATIONS FIRMS

Foregone positive externalities are only half the problem. The auctioning of spectrum is likely to reinforce existing market power. Dominant incumbents have the resources and the incentive to win the bids to protect their existing market power or to capture economies of scale and scope.

Key characteristics of media markets combine to limit competition and call into question the notion that media owners are constrained by traditional pro-competitive market forces. On the supply-side, media markets exhibit high first copy costs or high fixed costs. On the demand-side, media market products are in some important respects nonsubstitutable or exhibit strong group-specific preferences. The weak competition that results from the first copy/nonsubstitutability characteristics allows owners to earn monopoly profits and to use monopoly rents to pursue their personal agendas.[54]

Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer III and ONA Safeguards And Requirements, Federal Communications Commission, CC Dockets Nos. 95-20, 98-10, February 15, 2002. *In the Matter of Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities Internet Over Cable Declaratory Ruling Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, GN Docket No. 00-185, CS Docket No. 02-05, March 15, 2002. At the same time, it is considering weakening or eliminating the rules that govern media ownership, In the Matter of Implementation of Section 11 of the Cable Television Consumer Protection and Competition Act of 1992 Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996 The Commission's Cable Horizontal and Vertical Ownership Limits and Attribution Rules Review of the Commission's Regulations Governing Attribution Of Broadcast and Cable/MDS Interests Review of the Commission's Regulations and Policies Affecting Investment In the Broadcast Industry Reexamination of the Commission's Cross-Interest Policy, CS Docket No. 98-82, CS Docket No. 96-85, MM Docket No. 92-264, MM Docket No. 94-150, MM Docket No. 92-51, MM Docket No. 87-154 (hereafter, Horizontal Notice).

[54] Baker, Media.

Confronted with the fundamental nature of commercial mass media, the FCC has recently suggested that we abandon the competitive paradigm altogether. For example, At one point in the discussion of horizontal limits on cable ownership, the Commission notes that there are "[s]ome economists, most notably Schumpeter, suggest that monopoly can be more conducive to innovation than competition, since monopolists can more readily capture the benefits of innovation." [55] Here it is argued that competition between facility owners exercising their property rights to exclude and dictate uses of the network will produce a more dynamic environment; the rent-seeking behavior of innovators will stimulate more investment.

[55] Horizontal Notice, para. 36. We focus on this view since Chairman Powel has made his preference for Schumpeter clear, as he stated in a speech shortly before assuming the Chair of the FCC. "The Great Digital Broadband Migration," *Progress and Freedom Foundation*, December 8, 2000.

> And it is the unleashing of the power of "creative destruction," the phrase coined by the late great economist Joseph A. Schumpeter, who is celebrated increasingly as the father figure of the New Economy. Schumpeter saw that technological change "incessantly revolutionizes the economic structure from within." Rather than talk of "reform," a relatively pedestrian, incremental notion, we need to consider the Schumpeterian effect on policy and regulation…
>
> In a Schumpeterian New Economy where such forces are the engines of prosperity, we must foster competitive markets, unencumbered by intrusions and distortions from inapt regulations. And, most importantly, we have to be careful to see speculative fear and uncertainty in this innovation-driven space for what it is, and not prematurely conclude we are seeing a market failure that justifies regulatory intervention. Moreover, consumer protection is important, but it should be just that and not a straw man for engaging in industrial policy.

This view has been brought, directly into the strategic plan of the agency, in sections of the speech appear word-for-word.

The Commission has now lauded this monopoly theory as the core of the "new economy."[56] Chairman Powell made his preferences clear in this regard at his first press conference when he declared

> I don't see deregulation as the dessert you serve after people eat their vegetables-a reward…I fundamentally disagree with the idea that deregulation is something to be handed out only after competition is found to exist.[57]

This argument is conceptually linked to longstanding claims that "firms need protection from competition before they will bear the risks and costs of invention and innovation, and a monopoly affords an ideal platform for shooting at the rapidly and jerkily moving targets of new technology."[58] It has been extended lately to claims that in the new economy "winner take all" industries exhibit competition for the entire market, not competition within the market. As long as monopolists are booted out on a regular basis, or believe they can be, monopoly is in the public interest.[59] The subject of considerable dispute, the "winner take all" argument, has recently been rejected in the Microsoft case.[60] In communications and media markets, the monopolies tend to be anything but transitory.

An even more extreme version of this theory exists, one in which the mere threat of competition (rather than the occasional existence of it) is mentioned by the Commission.[61] This theory of contestability has been thoroughly rejected across a number of industries and,

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[56] *Draft Text for the FCC's Strategic Plan, 2003-2008,* p. 6.

[57] February 8, 2001.

[58] Scherer and Ross, p. 31.

[59] Stan J. Liebowitz and Stephanie E. Marigolds, *Winners, Losers & Microsoft* (Oakland: The Independent Institute, 2001), uses the term serial monopoly, as do a bevy of other Microsoft supported experts. Mark Cooper, "Antitrust as Consumer Protection: Lessons from the Microsoft Case," 52 *Hastings Law Journal* (2001), points out that there is no serial in Microsoft's monopolies. Rather, Microsoft conquers market after market using leverage and anticompetitive tactics, never relinquishing any of its previous monopolies.

[60] Mark Cooper, "Antitrust as Consumer Protection: Lessons from the Microsoft Case," 52 *Hastings Law Journal* (2001).

[61] ¶ 69.

given the clearly-documented existence of sunk costs in the industry that the Notice recognizes,[62] contestability is a non-starter for this industry, even if it had any validity elsewhere.[63]

The claim for Schumpeterian rents has long been contested.[64] In fact, the Schumpeterian theory of monopoly also appears to have little relevance to the facility portion

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[62] ¶ ¶ 15-16.

[63] Mark Cooper and Gene Kimmelman, "Comments of the Consumer Federation of America," *In the Matter of Policy and Rules Concerning Rates for Dominant Carriers,"* CC Docket No. 87-313, October 19, 1987, p. 66 pointed out that

> Many economists have criticized the theory loudly because of the unrealistic assumption on which it rested. Immediate reactions came from M. Schwartz and R.J. Reynolds, "Contestable Markets: An Uprising in the Theory of Industrial Organizations: Comment," *American Economic Review* 73 (1983), *On the Limited Relevance of Contestability Theory* (U.S. Department of Justice, Antitrust Division, Economic Policy Office, Discussion Paper No. EPO 84-10, 1984); M L. Weidman, "Contestable Markets: An Uprising in the Theory of Industry Structure: Comments," *American Economic Review* 73 (1983). Extensive critiques can be found in M. A. Spence, "Contestable Markets and the Theory of Industry Structure: A review Article," *Journal of Economic Literature*, 21 (1983); W.G. Shepherd, "Contestability v. Competition," *American Economic Review*, 74 (1984), "Illogic and Unreality: The Odd Case of Ultra-Free Entry and Inert Markets, in R.E. Grieson (Ed.) *Antitrust and Regulation* (Lexington: Lexington Books, 1986)…
>
> When sunk costs are introduced into experimental simulations of contestability theory, market performance appears to be no better than a duopoly situation, hardly acceptable as an example of vigorous competition (see D. Coursey, et al., "Market Contestability in the Presence of Sunk (Entry) Costs," *Rand Journal of Economics*, 15 (1984), Natural Monopoly and Contested Markets: Some Experimental Evidence, *Journal of Law and Economics*, 27 (1984).

[64] Scherer and Ross, p. 660.

> Viewed in their entirety, the theory and evidence suggest a threshold concept of the most favorable climate for rapid technological change. A bit of monopoly power in the form structural concentration is conducive to innovation, particularly <u>when advances in the relevant knowledge base occur slowly</u>. But very high concentration has a positive effect only in rare cases, and more often it is apt to retard progress by restricting the number of independent courses of initiative and by dampening firms' incentive to gain market position through accelerated R&D. Likewise, given the important role that technically <u>audacious newcomers</u> play in making radical innovations, it seems important that barriers to new entry be kept at modest level.
>
> Schumpeter was right in asserting that perfect competition has no title to being

(the physical layer) of this industry. The empirical literature on innovation suggests the opposite of allowing a small number of large firms to dominate communications networks by exercising monopoly power over facilities.

> One policy implication for antitrust is the need to preserve a larger number of firms in industries where the best innovation strategy is unpredictable…
> Another implication is … that "technical progress thrives best in an environment that nurtures a diversity of sizes and, perhaps especially, that keeps barriers to entry by technologically innovative newcomers low…
> A third implication is the awareness that dominant firms may have an incentive to act so as to deter innovative activities that threaten the dominant position.[65]

The theoretical literature provides ample basis for concern that the physical layer of communications platforms will not perform well if market power is not checked. In this layer, barriers to entry are substantial and go far beyond simple entrepreneurial skill. At the structural level, new entry into these physical markets is difficult. Auctioning licenses to exclusive use of spectrum create this barrier. Most of these markets have at most two or three competitors, which is not sufficient to sustain a competitive outcome.[66]

> established as the model of dynamic efficiency. But his less cautious followers were wrong when they implied that powerful monopolies and tightly knit cartels had any strong claim to that title. What is needed for rapid technical progress is a subtle blend of competition and monopoly, with more emphasis in general on the former than the latter, and with the role of monopolistic elements diminishing when rich technological opportunities exist.

[65] Daniel Rubinfeld and John Hoven, "Innovation and Antitrust,"" in Jerry Ellig (Ed.). *Dynamic Competition and Public Policy: Technology, Innovations, and Antitrust Issues.* Cambridge: Cambridge University Press pp. 75-76.

[66] Richard N. Langlois, "Technology Standards, Innovation, and Essential Facilities: Toward a Schumpeterian Post-Chicago Approach," in Jerry Ellig (Ed.), *Dynamic Competition and Public Policy: Technology, Innovations, and Antitrust Issues* (Cambridge: Cambridge University Press, 2001), p. 222,

> But in the case of a broad patent – or a broad standard – the remuneration that monopoly rights confer far outstrip the risk-discounted ex ante costs of innovation. Moreover, in the case of a broad patent or standard, the ability of the patent holder to block future innovation will do more to diminish the

Too few competitors slow the innovation process.[67] Controlling access to the platform confers a great deal of market power on the owner of the physical facility because it dominates a large part of the platform with easily implemented manipulation.[68] Denial of access to the physical layer transforms innovation that should be located in the code and content layers (a relatively malleable software problem), into a hardware problem.[69] Facilities markets are much more prone to monopolistic, duopolistic, or, at best, oligopolistic structures, while the applications and content markets are much better able to sustain an atomistically competitive structure. Inadequate competition at the physical layer harms the public by slowing competition in the layers of code and content.

D. ENCLOSING SPECTRUM THROUGH AUCTIONS RAISES BARRIERS TO ENTRY AND RESTRICTS DYNAMIC INNOVATION

Even without intentional anticompetitive behavior, closure of the platform imposes a cost in two ways. It distorts incentives for innovation and undermines institutional options.

> incentive for technological progress than will any weakening of intellectual property rights…
> Clearly, the narrower the scope of a technical standard, the more temporary – the more "Schumpeterian" – the rents are likely to be.

[67] Langlois, pp. 217-218 notes that it is possible for system competition to have beneficial effects, but there must be many competing systems.

> Another way to see this issue is to note that, when there is vibrant intersystem competition, there are more possible entry points for innovation. Multiple competing systems provide a way not only of providing variety but also of experimenting with organizational and design alternatives.

[68] Langlois, p. 221, call this scope and sees this as a fundamental issue.

> Here the idea of the "scope of the standard becomes important. The owner of a standard that control the compatibility of a large fraction of the components of a system is in a much better position to close off avenues of innovation that threaten the rent-earning potential of the standard. The owner of a standard with relatively small scope is always in danger of being "invented around" or made obsolete if it closes off access or otherwise exercises market power unduly.

[69] Langlois, p. 216,

First, restricting the range of experimentation and shifting incentives reduces the quality and quantity of innovation and innovators because it shifts the balance between incumbents and disruptive entrants. The hand of incumbents, who shy away from disruptive innovation, would be strengthened.[70] Incumbents behave rationally by developing their core competence and seeking structures that reward it.[71] The incentives for innovators are also dampened.[72]

Second, it inhibits development of new and non-commercial information institutions. Dominant commercial mass media firms have incentives to expand by commercializing, concentrating, and homogenizing information space. As a result,

> [n]oncommercial producers will systematically shift to commercial strategies. Small-scale producers will systematically be bought up by large-scale organizations that integrate inventory management with new production. Inventory owners will systematically misallocate human creativity to reworking owned-inventory rather than to [sic.] utilizing the best information inputs available to produce the best new information product.[73] Potential sources of disruptive innovation would shrink.[74]

The implication here is that we cannot just wait for platforms to open or hope that they will be. Doing nothing in the face of accelerating closure of the communications platform is

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[70] *See* LESSIG, Future, p. 91.

[71] *See* Lemley & Lessig, pp. 937-38 (citing Charles R. Morris & Charles H. Ferguson, *How Architecture Wins Technology Wars*¸ HARV. BUS. REV. 86, 88-89 (Mar.-Apr. 1993)).

[72] *See* Lemley & Lessig, p. 932-46:

[73] Benkler, *Intellectual Property* at 29.

[74] *See id.*, at 32-38 Benkler notes two feedback effects that "amplify the direction and speed of the shift in strategies, and lock them in institutionally." First, "organizations invest in creating demand for their products." This rebounds to the advantage of dominant commercial firms. Second, dynamic adjustment of organizations will accelerate changes in behaviors. Expectations about commercial mass media actions will result in adopting such "strategies sooner than might otherwise be warranted by a static assessment of market conditions immediately following an increase in property rights. Moreover, expectations regarding the dynamic effects on institutional development will create particularly intense incentives to adopt" the dominant commercial strategy.

doing harm.[75] Some of the harm cannot be undone.[76] Rectifying what can be fixed after the fact is immensely time consuming, costly and inevitably more intrusive.[77]

IV. EXPANDING OPEN COMMUNICATIONS

A. COMPETITIVE MARKETS, OPEN PLATFORMS AND DEMOCRATIC PROCESSES

It is important to stress that vigorously competitive markets are not antithetical to democratic processes. Indeed, economists note that there are political reasons to prefer atomistically competitive markets as well. Scherer and Ross, begin with the political implications of economic institutions and conclude that atomistic competition promotes individualistic, impersonal decisions with freedom of opportunity and relatively low resource requirements for entry.[78] These are ideal for populist forms of democracy.

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[75] *See* Bar, *supra* note 49.
[76] *See* Lemley & Lessig, p. 16.
[77] *See id.*, at 956-957.
[78] Scherer and Ross, p. 18.

> We begin with the political arguments, not merely because they are sufficiently transparent to be treated briefly, but also because when all is said and done, they, and not the economists' abstruse models, have tipped the balance of social consensus toward competition. One of the most important arguments is that the atomistic structure of buyers and sellers required for competition decentralizes and disperses power. The resource allocation and income distribution problem is solved through the almost mechanical interaction of supply and demand forces on the market, and not through the conscious exercise of power held in private hands (for example, under monopoly) or government hands (that is, under state enterprise or government regulation). Limiting the power of both government bodies and private individuals to make decisions that shape people's lives and fortunes was a fundamental goal of the men who wrote the U.S. Constitution.
>
> A closely related benefit is the fact that competitive market processes solve the economic problem *impersonally,* and not through the personal control of entrepreneurs and bureaucrats…
>
> [Another] political merit of a competitive market is its freedom of opportunity. When the no-barriers-to-entry condition of perfect competition is satisfied, individuals are free to choose whatever trade or profession they prefer, limited

Lessig points out that the characteristics of the Internet are a remarkably potent expression of these democratic fundamentals.

> Relative anonymity, decentralized distribution, multiple points of access, no necessary tie to geography, no simple system to identify content, tools of encryption – all these features and consequences of the Internet protocol make it difficult to control speech in cyberspace. The architecture of cyberspace is the real protector of speech there; it is the real "First Amendment in cyberspace," and this First Amendment is no local ordinance…
>
> The architecture of the Internet, as it is right now, is perhaps the most important model of free speech since the founding. This model has implications far beyond e-mail and web pages.[79]

Thus, in this discussion we use the concept of the Internet broadly as a communications platform with vast implications for the concept of the media. Open communications and the end-to-end principle, in the contemporary technological context, lower barriers to entry by reducing the scale for effective communications. Consumers can become users and producers of information.

B. THE ROLE OF PUBLIC POLICY IN CREATING OPEN COMMUNICATIONS PLATFORMS

It is also important to stress that government played a key role in requiring an open system which gave rise to a powerful wave of innovation. There must be no mistake about

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> only by their own talent and skill and by their ability to raise the (presumably modest) amount of capital required

[79] Lawrence Lessig, see *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999), p. 166-167. Lessig (code, p. 183) points out that at the time of the framing of the Constitution the press had a very atomistic trait.

> The "press" in 1791 was not the *New York Times* or the *Wall Street Journal*. It did not comprise large organization of private interests, with millions of readers associated with each organization. Rather, the press then was much like the Internet today. The cost of a printing press was low, the readership was slight, and anyone (within reason) could become a publisher – and in fact an extraordinary number did.

the critical role that government policy played in the process of creating this new information environment.

Leaving aside the origin of the Internet in national security concerns, a determined commitment to open communications networks was critical to the widespread development of the Internet. It is clear that the communications platform of the Internet was founded on, and thrived on, the principle that facility owners in the physical layer could not discriminate against innovators or speakers. This was accomplished through government policy.

> The FCC allowed specialized providers of data services, including Internet Service Providers (ISPs) and their customers, access to raw network transmission capacity through leased lines on cost-effective terms. Regulatory policy forced open access to networks whose monopoly owners tried to keep closed. The resulting competition allowed the FCC to free the service providers from detailed regulation that would have kept them from using the full capabilities of the network in the most open and free manner.
>
> Thanks to the enduring FCC policy of openness and competition, specialized networks and their users could unleash the Internet revolution. Open network policy assured the widest possible user choice and the greatest opportunities for users to interact with the myriad of emerging new entrants in all segments of the network. To be sure, the FCC strategy emerged haltingly but its direction never changed. Indeed, the Commission consistently backed cost-based access to the network (initially through leased lines and later through unbundled network elements). The de facto result of this policy, and of more conscious choices symbolized by the *Computer III* policies, was to prevent phone company monopolies from dictating the architecture of new data-related services. The Commission thus supported competition and innovation, time and again, by unfailingly keeping the critical network infrastructure open to new architectures and available to new services on cost-effective terms. The instruments of FCC policy were to make leased lines (and, lately, network elements) available on cost-oriented terms and to forebear from regulating Internet and other data services. This steady policy set in motion, and sustained, a virtuous cycle of cumulative innovation, new services, infrastructure development, increasing network usage with evident economic benefits for the U.S. economy.[80]

[80] Bar, *supra* note 49, at 2

Lessig is blunt about the government's role, claiming that "[p]hone companies…did not play… games, because they were not allowed to. And they were not allowed to because regulators stopped them."[81]

> We certainly do not claim that a communications network would have been impossible without the government's intervention. We have had telecommunication networks for over a hundred years, and as computers matured, we no doubt would have had more sophisticated networks. The design of those networks would not have been the design of the Internet, however. The design would have been more like the French analogue to the Internet--Minitel. But Minitel is not the Internet. It is a centralized, controlled version of the Internet, and it is notably less successful.[82]

The rich information environment that evolved on the Internet is a positive externality of both technological developments and public policies. The threat to this rich environment is precisely the threat that private actor and actions, not taking the positive externalities into account will destroy the environment.[83]

C. PUBLIC POLICY SHOULD EXPAND THE SCOPE OF UNFETTERED COMMUNICATIONS, NOT CONSTRICT IT WITH NEW PROPERTY RIGHTS

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[81] LESSIG, Code, p. 48 (citation omitted).

[82] Mark A. Lemley & Lawrence Lessig, "*The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*," 48 UCLA L. REV., p. 936.

[83] *See* JOHN B. TAYLOR, ECONOMICS 420 (1998). A direct analogy to biodiversity in the physical environment is appropriate. Taylor offers the following discussion of positive externalities from biodiversity and the threats of private actions, particularly the intergenerational threat:

> Biodiversity – the rich variety of plant and animal life in the world – has been recognized as having important benefits for pharmaceutical and medical research. Ideas for many important pharmaceutical products throughout history.. . have been discovered in the natural environment and then modified or improved by researchers…
>
> Those governments or individuals who own the rain forests suffer little if any cost from cutting them down and losing the biodiversity. The cost is external to them, spread around the world and indeed, to future generations, who must forego the opportunity of better drugs or other benefits that the variety of plant an animal life might bring.

Rather than rush to sell off the radio spectrum, the FCC should rationalize current uses and expand the space for unrestricted use. Because there are parts of the spectrum that have not been licensed to anyone and technologies are increasingly able to utilize unoccupied space in the spectrum, the agency has the opportunity to immediately establish this principle of unrestricted use in parts of the spectrum without confronting a conflict between new public uses and old private interests.

This does not mean we should not manage the current uses of the spectrum more efficiently by allowing more flexible licenses, but we must not confuse the reform of licensing of currently occupied spectrum with the best use for newly "discovered" or unlicensed spectrum. It does mean we should resist a land grab by existing license holders and other commercial interest, a land grab that, not coincidentally, would undermine the first serious threat to the market power of the media moguls and communications conglomerates in decades.

Here is a golden opportunity to dramatically promote the public interest and enrich civic discourse that should not be sold for a pocket full of gold. The FCC should maximize the unrestricted use of the spectrum. Presently unlicensed space should remain so. Non-interference rules to facilitate unlicensed use should be developed.

Expanding unlicensed space should be a top priority. This means granting licenses for short periods of time. Whenever spectrum becomes available, first priority should go to unlicensed use. If there is congestion in unlicensed space, the newly available spectrum should be made set aside for unlicensed use. If there is no congestion in unlicensed space, the newly available spectrum should be re-licensed subject to auctions.

Where licenses are auctioned, the use should not be specified. The license holder should be allowed to devote the spectrum that he or she has rented from the public to the use he or she deems of highest value, given the length of the license. When re-licensing the spectrum, there should be no "bias" in favor of incumbents.

D. DECISION RULES TO PRESERVE OPEN COMMUNICATIONS PLATFORMS

Even in unlicensed space, there are challenges to the open architecture of the Internet that must be met. In a world of collegial collaboration and coordination, the ends of the network could be relied upon to support the seamless flow and interoperability of data. The end-to-end principle kept the network simple and cheap so that applications developers at the end points who could experiment and innovate with confidence that the network would not get in the way.[84] A world of commercial competition, spiraling technical complexity, and troubling human frailties give network operators the impetus to begin fencing in the Internet,[85] as they insert choke points to monitor and control data flows. Thus, as the information superhighway transitions from a two-lane narrowband road to a multilane broadband highway, it is becoming pockmarked with potholes and littered with tollbooths, one-way streets and dead-ends.

These challenges are quite real, but the greatest threat to openness and dynamic innovation on the Internet has not come from technical glitches or even nefarious human

[84] Lemley and Lessig,

[85] David P. Clark, David D. and Marjorie S. Blumenthal, "Rethinking the Design of the Internet: The End-to-End Argument vs. The Brave New World," Telecommunications Policy, August 10, 2000 (hereafter Clark and Blumenthal), p. 18; Reed, David P., Jerome Saltzer and David D. Clark, *Active Networking and End-to-End Arguments* (May 15, 1998) (hereafter Reed, Saltzer and Clark).

actions, however.[86] Rather, it has come from the commercial interests that the Net sought to serve. [87] The most damaging restrictions sought or imposed by the new dominant commercial network owners have little to do with the technical problems of managing a complex, increasingly congested network. They are not motivated by efforts to solve the social problem of creating trust in cyberspace,[88] or to further the effort to fight new forms of cyber-crime or old forms of physical space crime made more challenging by their migration to cyberspace. The restrictions they seek to impose are driven by business models intended to preserve market power in physical space and extend it into cyberspace.[89]

It was probably not necessary for the end-to-end and other openness principles to be understood by policymakers until they were threatened. However, now that it appears that policy interventions will be necessary to defend these principles in the new Internet

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[86] Clark and Blumenthal, p. 23,

[87] Cooper, "Open Access to the Broadband Internet."

[88] The instant messaging dispute between AOL and other ISPs has been cast by AOL as one involving privacy and security, but a *Washington Post* story revealed that its central threat to Prodigy and others who had "hacked" into the instant message space was to claim economic harm.

[89] *Consumers Union, Consumer Federation of America and Media Access Project, Petition for Rulemaking (TCI)*; October 29, 1998; Mark Cooper, *Breaking the Rules: AT&T's Attempt to Buy a National Monopoly in Cable TV and Broadband Internet Services* (Consumer Federation of America, August 17, 1999); Petition to Deny of Consumer's Union, Consumer Federation of America, Media Access Project, and Center for Media Education In the Matter of Application of America Online Inc. and Time Warner, Inc. for Transfers of Control, Federal Communications Commission, CS-Docket No. 0030, April 26, 2000; "Testimony of Dr. Mark N. Cooper, Director of Research, Consumer Federation of America, on behalf of Consumer's Union, Consumer Federation of America, Media Access Project, and Center for Media Education, En Banc Hearing In the Matter of Application of America Online Inc. and Time Warner, Inc. for Transfers of Control, Federal Communications Commission, CS-Docket No. 0030, August 17, 2000; NorthNet, Inc., An Open Access Business Model For Cable Systems: Promoting Competition And Preserving Internet Innovation On A Shared, Broadband Communications Network, file at the Federal Communications Commission, Ex Parte, In the Matter of Application of America Online Inc. and Time Warner, Inc. for Transfers of Control, Federal Communications Commission, CS-Docket No. 0030, October 16, 2000 (hereafter NorthNet).

environment, it is necessary to translate technical principles into policy terms. This section endeavors to present the recent discussions by some of the most important figures in the articulation of the Internet principles in terms that are more accessible to policymakers. Given the new context, there will inevitably be debates about how solutions to problems should be effectuated.

End-to-end is still a master principle.[90] It continues to be a critically important organizing principle that is defensible and relevant to the new Internet. End-to-end receives deference. In order to impinge on it, an action must be guided by an equal, or higher principle.

To the extent that deviations from the simple end-to-end principles must be made, incursion on it should be minimized. Policy should require the least intrusive solution. Changes in the core of the network should be minimized.

Intelligence should be kept as far to the edge of the network as possible. Solutions that empower the user, as opposed to the network operator, are to be preferred.

Network performance and efficiency are not the only, or even the paramount goals of system administration. Solutions that preserve end-to-end but use more resources, within reasonable limits, should be preferred.

Changes in law should be preferred to changes in the network. They are not in the network and therefore do less damage to the open architecture of the network.

Where in-network solutions are necessary, trusted intermediaries should be sought as implementers of changes in the network. These must be neutral third parties who can be counted upon to pursue neutral, technical solutions to problems.

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[90] Reed, Saltzer and Clark, p. 3; Clark and Blumenthal, p. 25.

Changes in the network should allow maximum flexibility to the ends. Changes in the network should preclude as few solutions at the ends as possible.

Control points in any solution should be minimized and the farthest out in the network as possible. They should be revealed, mapped and monitored.

The amount of information required to be revealed by the end points for the solution should be minimized. Information should be revealed to the fewest number of intermediaries possible.

General solutions that allow a series of actions to take place are preferable to solutions that affect specific actions because they preserve the end-to-end flow. Rather than scrutinize action after action of an individual, it is better to qualify the individual once (and recertify periodically) than to intrude on each action.

Problems should be prioritized. Helping applications should take precedence over stopping them. Solutions that increase trust should take precedence over solutions that facilitate commerce. Controlling nuisance behavior should hold lower priority than ensuring uninhibited communications, in other words, err on the side of allowing nuisance communications rather than erring on the side of suppressing valid speech.

Differences between end users should be identified. At least four categories can be identified, government, public institutions, citizens, and commercial entities. Different end points can be given different access to solutions.

E. CONCLUSION

There is no doubt that a complex, shared environment like the spectrum poses greater challenges to the end-to-end principles that have created the open Internet. There is also no doubt that the legal and practical principles to preserve the fundamental quality of that

environment are in hand. It requires a considerable effort by technologist and policymakers to prevent practices that would choke the Internet. The one thing about which there is absolutely no doubt from the consumer and citizen points of view is that preserving the dynamically innovative, competitive, and consumer-friendly character of the Internet is well worth the effort.

If citizen participation in civic discourse is to become more effective, a substantial improvement in the means of communications at the disposal of the public—far beyond commercial mass media influences—must be promoted through public policy. The power of digital communication will be greatly enhanced by improved video images with impact heightened by real-time interactivity and personalized ubiquity. Dramatic increases in the ability to control and target messages and track media use could result in a greater ability to manipulate and mislead rather than a greater ability to educate and enlist citizens in a more intelligent debate. Individual members of society need new communications skills and access to technology to express themselves and evaluate the information presented by more powerful messengers.

The new technologies of commercial mass media are extremely capital intensive and therefore restrictive of who has access to them. A small number of giant corporations interconnected by ownership, joint ventures, and preferential deals now straddle broadcast, cable and the Internet. Access to the means of communications is controlled by a small number of entities in each community and distribution proprietors determine what information the public receives. The licensing of more spectrum and the creation of quasi-property right creates barrier to participation in civic discourse, where none need to exist.

Going in the opposite direction would better serve the public, reinforcing the dynamic environment of the Internet and supporting a far richer civic discourse. Building the next generation of the Internet on an open transmission network that is in the public domain would finally free the Internet from the specter centralized control and enclosure that has haunted it throughout its existence.